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EXAMINER

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ART UNIT

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/089,515
Filing Date: July 03, 2002
Appellant(s): OYAMA, SHIGEO T.

Michael E. Whitham
For Appellant

MAILED
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GROUP 1700

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 18, 2005 appealing from the Office action mailed January 25, 2005.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,454,246	FUNG	6-1984
4,359,406	FUNG	11-1982
4,367,137	ANTOS ET AL.	1-1983

Nozaki, "Hydrogenation activity of metal phosphides and promoting effect of oxygen", Journal of Catalysis, pp. 539-550, 1996, XP - 001147827.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 3-7, 9-13 and 43 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,454,246 or U.S. Patent No. 4,359,406, both to Fung.

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The instantly claimed composition is a single or binary metal phosphide on a support material.

The Fung references disclose supported binary metal phosphorus compounds that anticipate the herein claimed composition. See particularly column 3, line 16 – column 4, line 43 and column 8 of both of the Fung references.

Alternatively, these two references can be considered to differ in scope from the instant invention in that the references disclose additional metal phosphides outside the scope of the instant claims. The instantly claimed invention would have been obvious, however, because the skilled artisan is more than capable of selecting one or two metals from a specifically disclosed group of metals with the expectation of success.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as obvious over the Nozaki Journal of Catalysis article (XP009009979) submitted by appellant in view of either U.S. Patent No. 4,454,246 or U.S. Patent No. 4,359,406, both to Fung.

The instantly claimed composition is a single or binary metal phosphide on a support material. The article discloses alumina supported FeP.

The Nozaki article differs from the claimed invention in the use of an alumina support, rather than another support material. See particularly page 207.

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The Fung references are relied on for the teaching of equivalence of known high surface area supports in the area of metal phosphide catalysts. It would have been obvious to one skilled in the art to select any known support, so to maximize surface area and conversion and minimize cost. See the first full paragraph of column 4 of the references.

Absent any convincing evidence to the contrary, the examiner considers that the selection of appropriate support materials would have been within the skill of the artisan.

Claims 1, 3-7, and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,367,137 to Antos et al.

Antos et al. disclose catalytic composites comprising supported phosphorus components that are taught to be a phosphide with a cobalt component, substantially as claimed herein by appellant. See particularly column 7 and the examples.

Antos et al. differ from the subject invention in that the scope of Antos et al. and the instant claims is different. Antos et al. require a number of other components not claimed by appellant. However, the open claim language of "comprising" found in the instant claims does not exclude such components.

(10) Response to Argument

Appellant argues with respect to the rejections under 35 USC 102(b) and 35 USC 103(a) rejection that although Fung discusses Group VIII metals generally, the "synthesis method described is inappropriate for the non-noble metals". Appellant also asserts in the brief that Fung is limited to a noble metal phosphide.

This line of reasoning is not convincing to the examiner. Appellant should note that the Fung references specifically claim Group VIII metal phosphides. Column 3 of the references specifically defines acceptable Group VIII metals to include iron, cobalt and nickel phosphides. Accordingly, the Fung references do disclose non-noble metal phosphides. With respect to the arguments and the declaration asserting that the synthesis method of the Fung documents is "inappropriate" with "no chance" of forming a phosphide for non-noble metals, the examiner does not have the authority to entertain arguments that call into question the validity of the disclosure set forth in these U.S. Patents. The examiner will, however, make the following observations regarding the evidence present on this record:

Appellant's critical argument would reside in the fact that the temperatures of the Fung references are too low to produce phosphides for non-noble metals. At the outset, it should be noted that the temperatures being argued by appellants do not even appear in the instant claims.

Furthermore, Fung employ temperatures up to 650C for their process. Accordingly, applicant's data provided in the declaration using temperatures below 550C and 560C to produce phosphides fail to demonstrate any distinction from the reference processes.

Moreover, appellant should note that he has submitted other documentation on this record such as a Wang et al. article that indicates "major reduction at 550C, but completion required 690C". This would conflict with the information in the declaration showing phosphides at 550 and 560C.

Appellant has also referenced the Goodenough article during prosecution as evidence that higher reduction temperatures are required. Page 6 of the declaration states that the Goodenough article provides evidence of higher temperature phosphide formation. (The examiner notes that the statements in the brief now indicate that Goodenough is not in conflict with the data in the declaration because it simply "discusses the use" of high temperatures, but does not state that they are "required".) Accordingly, appellant cannot rely on the Goodenough article as evidence that the lower temperatures of the prior art will not result in phosphide formation as he appeared to do in the declaration.

Additionally, appellant's own specification indicates on page 10 that reaction temperatures are between 300C and 1000C.

Although appellants' brief indicates that the examiner has "erroneously made conclusions which incorrectly contradict the evidence presented in the case and in published journal articles", the examiner submits that all that is clear from this record is that considerable confusion has been introduced by arguments and a declaration that are in conflict with the information set forth in the application as originally filed. In view of these discrepancies, the examiner cannot conclude that there is sufficient and convincing evidence on this record to overcome a novelty rejection or a prima facie case of obviousness.

With respect to the rejection of the claims under 35 USC 103(a) over Nozaki in view of either of the Fung articles, appellant argues that, with respect to the

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amended claims, they have discovered a combination of metals and a combination of supports that were not previously recognized by the prior art and that the declaration of record provides evidence of this position. Appellant argues, for example, that the declaration demonstrates that nickel phosphide on zeolite forms at much lower temperatures than nickel phosphide on alumina, and therefore the fact that the instant claims do not require alumina should not be minimized.

This line of reasoning is not convincing. In the first place there is no evidence of such "recognition" by the applicant in the instant specification, which teaches alumina to be an effective support for production of the claimed composition, and indicates that temperatures as low as 300C are effective for the purpose of reduction to form metal phosphides. Secondly, the prior art indicates equivalence between the known supports, and although above mentioned showing may be dispositive regarding some sort of result not previously recognized by appellant at the time of invention, it is insufficient to establish superiority of **all** of the combinations of supports and metals set forth in the instant claims and is therefore not even remotely commensurate with the claims under examination. Accordingly, the preponderance of the evidence on this record supports the conclusion of obviousness.

With respect to this rejection of the claims 1, 3-7 and 9-13 under 35 USC 103(a) over Antos, appellant urges that Antos is uncertain whether a phosphide has formed, and the temperature employed by Antos is insufficient to result in phosphide formation. At the outset, it should be noted that the temperatures being argued by appellants do not even appear in the instant claims.

Furthermore, in Antos, a reduction above 300C takes place, and appellant's specification indicates 300C as sufficient for phosphide formation. Additionally, the appellant should note that he has submitted other documentation on this record such as the Wang article that indicates "major reduction at 550C, but completion required 690C". This would conflict with the information in the declaration indicating phosphide formation at 550C and 560C. Finally, appellant indicates that since Antos is only employing a temperature of 524C, there is no way he could achieve a phosphide. The provided evidence in the declaration shows nothing in the range of temperatures from 440C to 540C and therefore is not probative.

Appellant has also referenced the Goodenough article during prosecution as evidence that higher reduction temperatures are required. Page 6 of the declaration states that the Goodenough article provides evidence of higher temperature phosphide formation. (The examiner notes that the statements in the brief now indicate that Goodenough is not in conflict with the data in the declaration because it simply "discusses the use" of high temperatures, but does not state that they are "required".) Accordingly, appellant cannot rely on the Goodenough article as evidence that the lower temperatures of the prior art will not result in phosphide formation as he appeared to do in the declaration.

Additionally, appellant's own specification indicates on page 10 that reduction temperatures are between 300C and 1000C.

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Although appellants' brief indicates that the examiner has "erroneously made conclusions which incorrectly contradict the evidence presented in the case and in published journal articles", the examiner submits that all that is clear from this record is that considerable confusion has been introduced by arguments and a declaration that are in conflict with the information set forth in the application as originally filed.

In view of these discrepancies, the examiner cannot conclude that there is sufficient and convincing evidence on this record to overcome a prima facie case of obviousness.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.


For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



Elizabeth Wood
Primary Examiner
Art Unit 1755

Conferees:



Jerry Lorengo
Patrick Ryan

